

REMARKS

Claims 1, 3-9, 11-19 and 21 are pending in this application. Claims 11-16 have been withdrawn from consideration. Claim 20 is cancelled herein without prejudice or disclaimer of the subject matter contained therein. Claims 1, 3, 7, 9, 17-19 and 21 are amended. No claims have been added. Reconsideration in view of the following remarks is respectfully requested.

Claim Rejections – 35 U.S.C. § 112

Claims 1, 3-9 and 17-21 were rejected under 35 U.S.C. § 112, first paragraph.

Claim 20 is cancelled herein without prejudice or disclaimer. Therefore, the rejection of claim 20 under § 112, first paragraph is rendered moot.

The Examiner contends that the specification does not provide support for “forming a material including a metal inside the chamber,” as recited in claims 1 and 9. Applicants respectfully disagree. Support for the limitation “forming a material including a metal inside the chamber,” may be found throughout the specification, for example, in paragraphs [0024] and [0025] where it is stated that “...forming a thin film of the metal used for the formation of an interconnection or an electrode of a semiconductor element, for instance copper...”

The Examiner contends that the specification does not provide support for removing a material including metal by contacting the material with a cleaning agent including one of carboxylic acid and a derivative of carboxylic acid without vaporizing the cleaning agent as claimed in claims 1, 3-9 and 17-21. Accordingly, Applicants have amended claims 1, 9 and 17 and added the limitation “vaporizing a cleaning agent...”

The Examiner contends that the specification does not provide support for “a composition thereof,” as claimed in claim 3. Applicants respectfully disagree. Claim 3, as originally filed, recited “wherein the carboxylic acid or the derivative of carboxylic acid is a substance expressed by the following equation: RCOOH, RCOOR’, or R(COOH)n...” Accordingly, the phrase “or a composition thereof” is fully supported. Applicants have amended claim 3 and deleted the limitation “a composition thereof,” not in response to the Examiner’s rejection, but because the Applicants believe that the claim clearly defines the scope of the invention and that the limitation is not required.

In summary, Applicants respectfully submit that claims 1, 3-9, 17-19 and 21 are in full compliance with § 112, first paragraph, and respectfully request that the rejection of claims 1, 3-9 and 17-21 under § 112, first paragraph, be withdrawn.

The Examiner also contends that the specification, while being enabling for using carboxylic acid as a cleaning agent after said cleaning agent is vaporized to form a vaporized cleaning agent before the step of supplying cleaning agent, and for a method for removing metal stuck to an inner wall of the treatment chamber, does not provide enablement for using a cleaning agent such as carboxylic acid before said cleaning agent is vaporized to form a vaporized cleaning agent, and for removing a material including a metal from any surface. Applicants have amended claims 1, 9 and 17 to further clarify the claims language and added the limitation “vaporizing a cleaning agent...,” which Applicants believe addresses the Examiner’s concern.

The Examiner notes that the specification provides enablement for a method for removing a metal stuck to an inner wall of a treatment chamber by contacting a cleaning agent in vapor form with said metal to form a metal complex of the metal and the cleaning agent but states that it does not appear to be feasible that any cleaning agent would function in the present invention. Applicants have amended claims 1, 9 and 17 to recite “the vaporized cleaning agent.” Thus, Applicants respectfully submit that they have further clarified the “kind” of cleaning agent used to form a metal complex.

Therefore, Applicants respectfully submit that claims 1, 3-9, 17-19 and 21 are in full compliance with § 112, first paragraph, and respectfully request that the rejection of claims 1, 3-9 and 17-21 under § 112, first paragraph, be withdrawn.

Claims 1, 3-9 and 17-21 were rejected under 35 U.S.C. § 112, second paragraph.

Claim 20 is cancelled herein without prejudice or disclaimer. Therefore, the rejection of claim 20 under § 112, second paragraph is rendered moot.

The Examiner contends that claims 1, 9 and 17 are incomplete because the step of vaporizing the cleaning agent is required. Accordingly, Applicants have amended claims 1, 9 and 17 and added the limitation “vaporizing a cleaning agent.”

The Examiner contends that claims 1, 9 and 17 are incomplete because the step of cleaning the treatment chamber and step of removing metal have not been recited. Applicants respectfully disagree.

Applicants respectfully submit that Applicants may claim the subject matter that Applicants regard as their invention and Applicants are not required to recite all the elements of an embodiment of the invention. In determining whether an unclaimed feature is critical, the entire disclosure must be considered. An enablement rejection based on the grounds that a disclosed critical limitation is missing from a claim should be made only when the language of the specification makes it clear that the limitation is critical for the invention to function as intended (see MPEP 2164.08(c)).

The Examiner contends that claim 21 is indefinite because it is not clear if the confirming step is related to the existence of the material on the substrate inside the chamber or the material inside the chamber.

Claim 21 recites, *inter-alia*, “forming a material including a metal inside the chamber... confirming the existence of the material inside the chamber.” One of ordinary skill in the art would understand the scope of claim 21. One of ordinary skill in the art would understand that “confirming” is related to confirming the existence of the material inside the chamber.

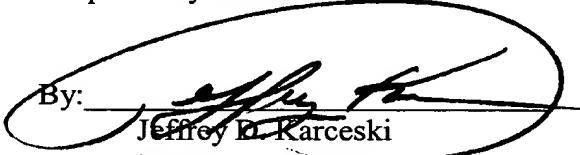
Therefore, Applicants respectfully submit that claims 1, 3-9, 17-19 and 21 are in full compliance with § 112, second paragraph and respectfully request that the rejection of claims 1, 3-9 and 17-21 under § 112, second paragraph be withdrawn.

CONCLUSION

In view of the foregoing, the claims are now in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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